Issue: Potential Loss of Canopy to Development, Urbanization and Recreation

The intent of this issue is to:

1. Identify the areas at greatest risk of conversion from forestland to other uses—specifically development. Often, forested areas are highly desirable for home sites or new subdivisions. With this conversion comes a loss of productive forests, increased wildfire risk to property as more homes are "in the woods", and pressure to reduce or eliminate management on adjacent lands. Also important are those areas that may be converted from one housing density to a significantly higher density within developed areas as this may also lead to loss of canopy and the benefits it provides.
2. Identify those areas were pressure from off road vehicle (ORV) use in undesignated areas can lead to degradation of forested areas. Such use has increased erosion, user conflicts, spread of invasive species, damage to cultural sites, disturbance to wildlife, destruction of wildlife habitat, and risks to public safety. Along with fire and fuels, invasive species and loss of open space, this issue is one of the US Forest Service's "four threats." Managing the areas where impact or potential impact is greatest, in addition to educational efforts will help alleviate these impacts.

Originally, Canopy Loss due to Urbanization and Development; and Recreation Pressure were separate issues. IDL Staff made the decision to combine them as they are both impacted by population density, and because we were only measuring ORV pressure within the Recreation dataset. It was felt that to separate them would be placing too great an emphasis on population density by counting it twice.

Data used:

Development Potential

The National Guidance suggested using the "Forests on the Edge" data developed by Dr. David Theobold, Colorado State University. These data use the SERGoM v3 model, described in the research paper **Watersheds at Risk to Increased Impervious Surface Cover in the Conterminous United States,** to predict housing density in ten-year increments from 2000 to 2030. By subtracting 2000 housing densities from 2030 predicted housing densities, we can express the potential areas of new development.

The Theobold data broke out housing density into ten classes; we modified these to eight classes as follows:

1. No Development or >80 acres per unit (rural)
2. 40-80 acres per unit (rural 1)
3. 20-40 acres per unit (rural 1)
4. 10-20 acres per unit (rural 2)
5. 1.7-10 acres per unit (rural 2)
6. 0.6-1.7 acres per unit (exurban/urban)
7. <0.6 acres per unit (exurban/urban)
8. Urban/built up (commercial, industrial, transportation)

When considering the movement from one density class to another, we wanted to make some judgment about the relative impact of that change. IDL Staff developed the following matrix showing values from 0 (no change) and 1 (low impact change) to 5 (highest impact change) and classified the data accordingly. The numbers in the colored boxes represent the housing density classes shown above. So, movement from density class 2 (one unit per 40 – 80 acres) in 2000 to density class 5 (1.7 – 10 units per acre) by 2030 is considered a very high impact (value of five), A movement from density class 2 (one unit per 40 – 80 acres) in 2000 to density class 4 (one unit per 10 – 20) acres in 2030, on the other hand, is considered low-moderate change.

		2030							
		No Dev	Rural			Urban			
2000		1	2	3	4	5	6	7	8
No Dev	1	0	1	1	3	5	5	5	5
Rural	2	--	0	0	2	5	5	5	5
	3	--	--	0	0	5	5	5	5
	4	--	--	--	0	3	4	5	5
Urban	5	--	--	--	--	0	2	4	5
	6	--	--	--	--	--	0	4	5
	7	--	--	--	--	--	--	0	3
	8	--	--	--	--	--	--	--	0

0 or -- = no or negative change
1 = low impact change
2 = low-moderate impact change
3 = moderate impact change
4 = high-moderate impact change
5 = high impact change

Recreation Pressure from ORV's

We used a model developed by the Idaho Department of Lands that incorporated US Census data for population density, the number of ORV registrations by county, TIGER 2000-based streets dataset, and travel distance preferences from 2002 Recreation Demand Assessment by the Idaho Department of Parks and Recreation.

We used the following assumptions in developing the model:

- Census population can be used as a surrogate for overall recreation pressure
- OHV registration totals by county can be used to estimate motorized recreation pressure
- The public road network is how recreation pressure is transmitted and dispersed to forested lands
- Recreation pressure comes primarily from urban population centers within and outside the state:
    1. Boise/Nampa/Caldwell
    2. Twin Falls
    3. Pocatello
    4. Ogden/Layton, UT
    5. Logan, UT
    6. Idaho Falls
    7. Moscow, ID/Pullman, WA
    8. Clarkston, WA/Lewiston, ID
    9. Spokane, WA/Coeur d'Alene, ID
- Recreation pressure on a forestland can come from multiple population centers and is additive
- Recreation pressure decreases as travel time to a recreation destination increases (actually, not an assumption but confirmed by IDPR recreation demand surveys)
- All parts of the state are equally desirable recreation destinations and certain destinations (such as resort areas, parks, etc.) do not attract more recreation pressure than others
- Recreation activity is defined as that which lasts a day or less; multi-day recreation activities are not considered

The result is a map that shows ORV pressure based on a 1 to 3 hour travel time. Those areas closest to urban areas (requiring less time to get to) were scored highest. Data was divided into three classes, scored 1 through 3. More information on this model can be found by reading the **Modeling Recreation Pressure on Idaho Forest Lands**.

Issue Process: The two datasets were added together, and then stratified into 5 classes (low to high risk) using natural breaks in the data.

Data considered, but not used:

Development Potential

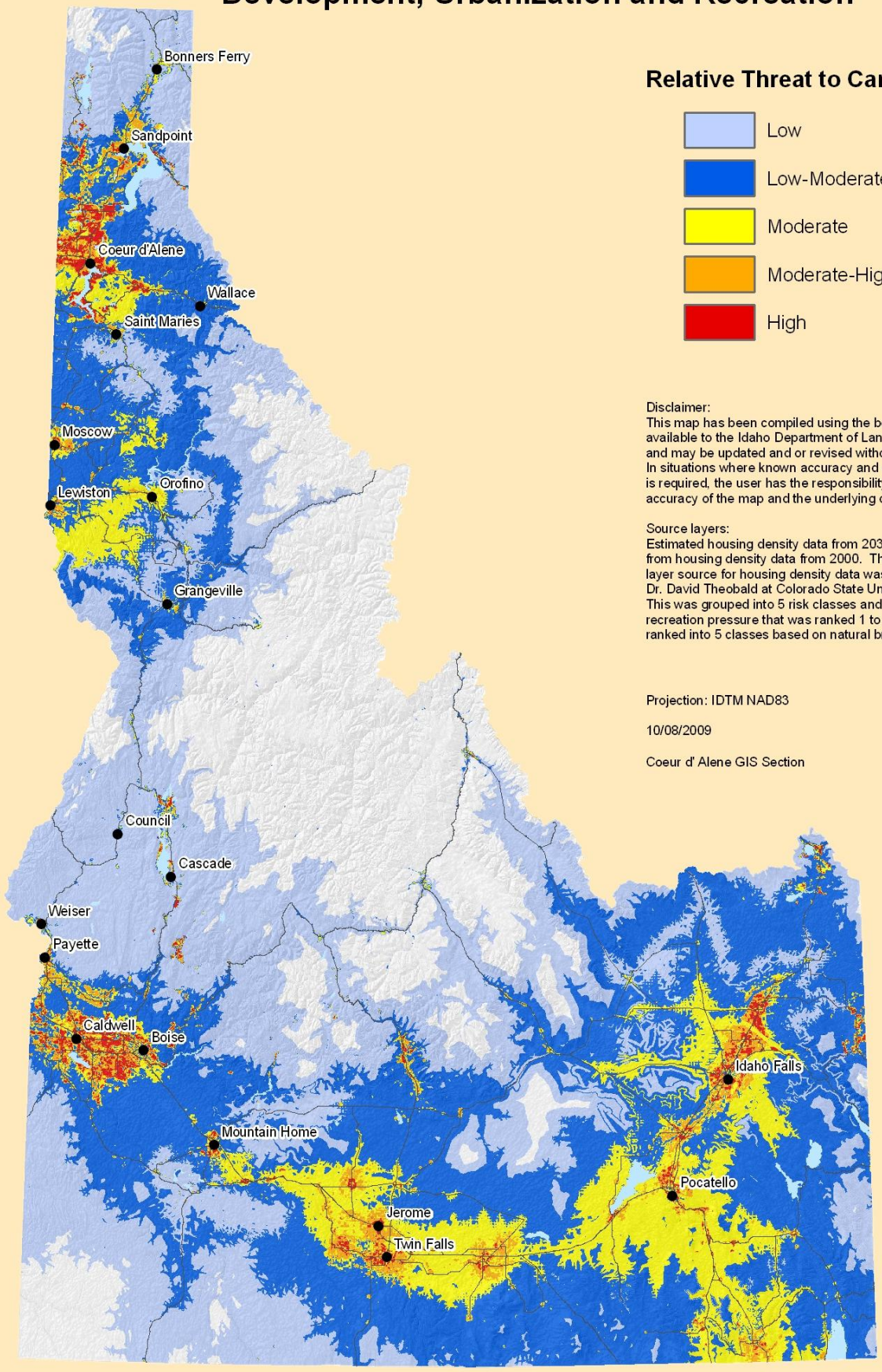
The Core Development Team also suggested using the industrial forestlands owned by Real Estate Investment Trusts (REITs) and Timber Investment Management Organization (TIMOs), since the potential divestiture of these lands for development is increasing. Upon further investigation, IDL GIS staff determined these datasets were unavailable, and were therefore not used.

Recreation Pressure

One of the datasets considered early on was the High-Use Dispersed Recreation Areas, from the Interior Columbia Basin Ecosystem Management Project, a model that incorporated several other datasets. This was ultimately not used due to currency of data and the feeling that what the model we had available to us was better.

We also wanted to incorporate data from Idaho Parks and Recreation, and this is part of the model we are using. Additionally, we contacted the Idaho Conservation League and the Wilderness Society, but they did not have data the type of geospatial data we needed.

Potential Loss of Forests and Canopy from Development, Urbanization and Recreation



Relative Threat to Canopy

- Low
- Low-Moderate
- Moderate
- Moderate-High
- High

Disclaimer:
This map has been compiled using the best information available to the Idaho Department of Lands at the time and may be updated and or revised without notice.
In situations where known accuracy and completeness is required, the user has the responsibility to verify the accuracy of the map and the underlying data sources.

Source layers:
Estimated housing density data from 2030 subtracted from housing density data from 2000. The original data layer source for housing density data was produced by Dr. David Theobald at Colorado State University.
This was grouped into 5 risk classes and added with a recreation pressure that was ranked 1 to 3. The sum was ranked into 5 classes based on natural breaks in the data.

Projection: IDTM NAD83

10/08/2009

Coeur d' Alene GIS Section

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